QUERCUS GARRYANA / CAREX INOPS - (CAMASSIA QUAMASH)

Oregon white oak / long-stolon sedge - (common camas)
Abbreviated Name: QUGA/CAIN-(CAQU)
Synonym: *Quercus garryana / Carex pensylvanica – (Camassia quamash)*

Sample size = 15 plots

DISTRIBUTION: Occurs in San Juan, Whatcom, Pierce, and Thurston counties. May have formerly occurred in Clallam, Island, Mason, King, Lewis, Grays Harbor, Cowlitz, and Clark counties. Occurs in southwestern BC also.

GLOBAL/STATE STATUS: G1S1. There are only 5 known fair- to good-condition occurrences remaining in Washington. Those that remain are highly threatened by non-native species, conifer encroachment, and development.

ID TIPS: Woodland (>25% tree crown cover) dominated by Oregon white oak. Herbaceous dominated understory with significant native understory component. Long-stolon sedge usually co-dominant, common camas or western buttercup usually present.

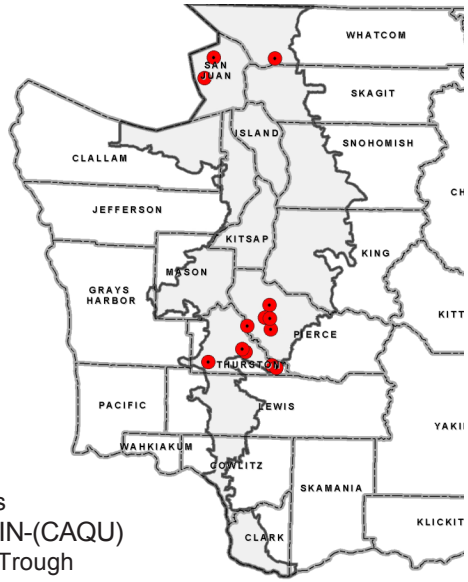
ENVIRONMENT: These sites are dry to very dry and appear to be relatively nutrient-rich. Occurs on slopes with sunny aspects (south-east to west) and shallow soils over bedrock, or on deep-soil coarse-textured gravelly outwash plains.
Precipitation: 30-53 inches (mean 45)
Elevation: 150-1400 feet
Aspect/slope: SE to W/ 0-82% slope (mean 21)
Slope position: plain, mid, upper, ridgetop, short
Soil series: Spanaway, rock outcrop, rockland, andic xerochrepts, Everett

DISTURBANCE/SUCCESSION: Fire-associated. In the pre-Western settlement landscape (with much more frequent fires) these sites probably supported some oak savanna, some grassland vegetation, and some vegetation similar in physiognomy and composition to existing. In the absence of the former fire regime or active management, most of these stands are being invaded by Douglas-fir trees and/or shrubs (snowberry, Scot's broom), and are likely to convert to QUGA/SYAL/CAIN, QUGA-PSME/SYAL/POMU, or non-native understory vegetation. Stands on shallow soils appear more resistant to successional changes that lead to their conversion to Douglas-fir forests.

Vegetation Composition Table (selected species):
Con = constancy, the percent of plots within which each species was found;
Cov = cover, the mean crown cover of the species in plots where it was found.

Trees	Kartesz 2003 Name	Con	Cov
Oregon white oak	Quercus garryana var. garryana	100	54
Douglas-fir	Pseudotsuga menziesii var. menziesii	60	6
Shrubs, Subshrubs			
Scot's broom	Cytisus scoparius	67	10
common snowberry	Symphoricarpos albus var. laevigatus	73	7
tall Oregongrape	Mahonia aquifolium	73	5
serviceberry	Amelanchier alnifolia	53	3
Indian plum	Oemleria cerasiformis	33	2
hairy honeysuckle	Lonicera hispidula	20	25
kinnnikinnick	Arctostaphylos uva-ursi	20	6
Graminoids			
long-stolon sedge	Carex inops ssp. inops	93	24
Kentucky bluegrass	Poa pratensis	93	19
blue wildrye	Elymus glaucus	73	12
wood-rush	Luzula (comosa, multiflora ssp. multiflora)	53	2
Roemer's fescue	Festuca roemeri	40	6
California brome	Bromus carinatus	40	6
California danthonia	Danthonia californica	40	3
colonial bentgrass	Agrostis capillaris	33	12
red fescue	Festuca rubra	20	21
orchard grass	Dactylis glomerata	20	18
Forbs and Ferns			
common St. John's-wort	Hypericum perforatum	67	4
cleavers	Galium aparine	67	3
yarrow	Achillea millefolium var. occidentalis	60	4
English plantain	Plantago lanceolata	60	2
western buttercup	Ranunculus occidentalis var. occidentalis	60	2
common camas	Camassia quamash (vars. azurea, maxima)	53	6
hairy cat's-ear	Hypochaeris radicata	53	2
Pacific sanicle	Sanicula crassicaulis var. crassicaulis	47	2
early blue violet	Viola adunca var. adunca	47	1
chocolate lily	Fritillaria affinis var. affinis	47	+
meadow death camas	Zigadenus venenosus var. venenosus	33	1
cut-leaf microseris	Microseris laciniata	27	2
woods strawberry	Fragaria vesca ssp. bracteata	27	2
white-top aster	Sericocarpus rigidus	27	+
common strawberry	Fragaria virginiana ssp. platypetala	20	3
Nuttall's larkspur	Delphinium nuttallii	13	6
spring-gold	Lomatium utriculatum	13	4
houndstongue hawkweed	Hieracium cynoglossoides	13	2
Henderson's shootingstar	Dodecatheon hendersonii	7	18
Puget balsamroot	Balsamorhiza deltoidea	7	13

Oregon white oak / long-stolon sedge - (common camas)



Plot locations of QUGA/CAIN-(CAQU) in the Puget Trough

Oregon white oak / long-stolon sedge - (common camas)

VEGETATION: Woodland, or rather open forest, dominated by Oregon white oak. The understory is usually dominated by herbaceous vegetation. Most commonly long-stolon sedge and the non-native Kentucky bluegrass are co-dominant. Blue wildrye is usually present and often co-dominant as well. Excellent-condition occurrences usually have some Roemer's fescue. Red fescue, orchardgrass, and colonial bentgrass can also be prominent to co-dominant. A relatively low-growing shrub layer varies from absent to prominent. Common snowberry, tall Oregongrape, Scot's broom, and serviceberry are usually present. A variety of native and non-native forbs can be present. The most abundant native forb in terms of cover is common camas, though it is not consistently present. Yarrow, western buttercup, and cleavers are usually present. Many other prairie-associated plant species are possible.

CLASSIFICATION NOTES: Currently known as QUGA/CAQU Forest by NatureServe (2004). Chappell and Crawford (1997) describe same association from South Puget Sound area. In BC, Erickson (1996) recognizes multiple community types that have affinities to this association. QUGA/FERO Herbaceous Vegetation (oak savanna) has less cover of oak (10-25%), greater abundance of Roemer's fescue, and fewer shrubs and shade-tolerant herbs.

MANAGEMENT NOTES: Maintenance of this association requires monitoring and in many cases active control (e.g., prescribed fire, cutting, herbicides) of Douglas-fir, Scot's broom, and snowberry. Care should be taken to avoid disturbances so intense that they facilitate loss of native understory or massive increase of non-native herbs. Native species composition is also threatened by apparent ongoing increase and expansion of non-native grasses (e.g., tall oatgrass).

BIODIVERSITY NOTES: State sensitive white-top aster (*Aster curtus*) occurs in this association in southern Puget Sound area. State candidate slender-billed white-breasted nuthatch (*Sitta carolinensis aculeata*) is dependent on oak habitat and appears to prefer more open oak woodlands such as this association. State threatened western gray squirrel (*Sciurus griseus*) requires oak woodland as one component of its habitat, and probably uses this association. Many unlisted plant species associated with this vegetation are probably declining in the Puget Trough.